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FOUR NEW MAMMALS FROM THE NORTHERN TERRITORY OF AUSTRALIA

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The following new kinds of placental mammals and a new species of the marsupial *Antechinus* described previously in these Proceedings (vol. 67, pp. 77-80, 1954) were discovered in studying the collections made by the American-Australian Scientific Expedition to Arnhem Land of 1948, which was sponsored jointly by the Commonwealth of Australia, the National Geographic Society, and the Smithsonian Institution. A general report on the mammals will be included in the "Records" of the Expedition, which are being published in Australia by the Melbourne University Press.

Capitalized color terms are from Ridgway, "Color Standards and Color Nomenclature," 1912. All measurements are in millimeters.

Order CHIROPTERA

Family HIPPOSIDERIDAE

Hipposideros bicolor gilberti, new subspecies

Type specimen.—U. S. National Museum, No. 284170; male adult, skin and skull; collected November 1, 1948, by D. H. Johnson (field no. 5936).

Type locality.—Oenpelli, East Alligator River, Northern Territory, Australia (lat. 12° 21′ S., long. 133° 04′ E.).

Diagnosis.—A small race of *Hipposideros bicolor,* paler in color than previously described eastern races of that species, in size about equal to *cineraceus* of Burma and *anticola* of the Philippine Islands, smaller than *albanensis* of the Cape York Peninsula and *saevus* of the Key Islands.

Description.—Hair bicolored as is characteristic of the species, but terminal darkened part reduced to less than one third of total length; basal part between white and Pale Smoke Gray, terminal part near Drab, but general dorsal color effect much lightened by paler basal color which shows through from all angles; breast and belly colored like back but fur much shorter; throat whitish, terminal darkening of hairs imperceptible. Nose leaves comparatively simple, squarish in outline, lacking secondary leaflets or club-shaped median projections; transverse process divided into four approximately equal cells by three vertical septa. Ears broad, rounded at tips, and with simple outer margins. Skull narrow and

pointed; mastoid breadth exceeding zygomatic breadth; upper incisors and canines simple; small upper premolar with its outer edge aligned with outer margin of toothrow.

Measurements of type specimen.—Head and body 45 mm., tail 24, hind foot with claw 8, ear from notch 21, forearm 37, condylobasal length of skull 13.7, length of skull from condyle to canine (as used by Andersen, Ann. & Mag. Nat. Hist., ser. 9, vol. 2, p. 380, 1918) 13.4, zygomatic breadth 8.0, mastoid breadth 8.4, intertemporal constriction 2.1, upper toothrow C-M^3 5.3.

Specimens examined.—A total of seven: the type and three others from Oenpelli (USNM nos. 284167-70), and three including a nursing young from Douglas River, about 100 miles south of Darwin (USNM nos. 237956, 237961, 237964).

Remarks.—The species *Hipposideros bicolor* is represented by numerous subspecies over a wide area in southeastern Asia and the various island groups east to New Guinea. The only race previously recorded from the Australian mainland is the dark-colored *albanensis* of the Cape York Peninsula.

The specimens from Douglas River were collected by Charles M. Hoy in 1920 and have for many years been misidentified as *Hipposideros stenotis,* the only member of the genus previously known from the Northern Territory of Australia. They were mentioned under that name by Tate (Bull. Amer. Mus. Nat. Hist., vol. 78, p. 389, 1941). The small size, bicolored fur, great mastoid breadth, and absence of protuberances on the nose leaves clearly distinguish them from that species and ally them with *Hipposideros bicolor.*

The new subspecies is named in honor of John Gilbert, the English naturalist who in 1840 initiated the study of the mammals of the present Northern Territory by making extensive collections at Port Essington.

Family VESPERTILIONIDAE

Nyctophilus arnhemensis, new species

Type specimen.—U. S. National Museum, No. 284240 ♂; male adult, skin and skull, collected August 12, 1948, by D. H. Johnson (field no. 5692).

Type locality.—Rocky Bay, south of Yirrkala, Cape Arnhem Peninsula, Northern Territory, Australia (lat. 12° 16′ S., long. 136° 47′ E.).

Diagnosis.—A small *Nyctophilus* resembling *N. microtis* and *N. geoffroyi* in size; differing from the latter species in having smaller ears, less well developed nose leaves, and broader skull; larger throughout and with much larger ears than *N. walkeri.*

Description.—Color above between Snuff Brown and Tawny-Olive, beneath near Cinnamon-Buff. Posterior element of nose leaves little developed, Type 1 in the classification of Thomas (Ann. & Mag. Nat. Hist., ser. 8, vol. 15, pp. 493-494, 1915); ears moderate in size, smaller than those of *N. geoffroyi* and larger than those of *N. walkeri.* Skull, as compared with that of *N. geoffroyi,* short and broad; rostrum short, broad, and flat; frontal region rising abruptly from rostrum; braincase high and broad. Toothrows widely spaced; upper incisor slender; upper canine with well developed cingulum which is elevated on lingual side of tooth to form a distinct cusplet; third upper molar larger and more com-

plex than in *M. geoffroyi*, metacone and mesostyle well developed, and posterior margin of tooth indented between parastyle and mesostyle (terminology of cusps following Miller, U. S. Nat. Mus. Bull. 57, pp. 30-31, 1907).

Measurements of type specimen.—Head and body 51 mm., tail 43, hind foot with claw 9, ear from notch 21, forearm 37, condylobasal length of skull 14.0, zygomatic breadth 10.0, intertemporal constriction 3.5, mastoid breadth 8.3, upper toothrow C-M^3 5.5.

Specimens examined.—A total of five: the type and two others from Rocky Bay, Cape Arnhem Peninsula (USNM Nos. 284240-42), one from Brocks Creek, about 100 miles south of Darwin (No. 237960), and one from Port Langdon, Groote Eylandt (No. 284239).

Remarks.—In size *Nyctophilus arnhemensis* is intermediate between the two species previously described from the Arnhem Land area: *N. daedalus* Thomas with forearm length 41 to 43 mm., and *N. walkeri* Thomas with forearm 33.5 mm. Thus it falls within the general size range of *N. geoffroyi*, which is widely distributed over more southern parts of Australia, but which differs in essential characters as described above. The resemblance to *N. microtis* of New Guinea is suggestive, and, when comparison of specimens can be made, *arnhemensis* may prove to be a paler subspecies of that generally dark-colored bat.

The single specimen from Groote Eylandt stands out from the others in having a more robust skull and a more flattened rostrum, thus carrying the differences that distinguish *N. arnhemensis* from *N. geoffroyi* to an extreme. In other characters it does not appear to differ from the mainland specimens of *arnhemensis*.

Family MOLOSSIDAE

Tadarida loriae cobourgiana, new subspecies

Type specimen.—U. S. National Museum, No. 284243; female adult, skin and skull; collected September 25, 1948, by D. H. Johnson (field no. 5846).

Type locality.—Black Rock Point (on north shore of Van Diemen Gulf, 15 miles southeast of Cape Don lighthouse), Cobourg Peninsula, Northern Territory, Australia (lat. 11° 26′ S., long. 131° 56′ E.).

Diagnosis.—A small molossid bat of the group that includes *Tadarida loriae* Thomas of eastern New Guinea and *Tadarida norfolkensis* Gray of southeastern Australia. Distinguished from *T. l. loriae* by dark rather than white underparts. Allied to *loriae* and distinguished from *norfolkensis* by unflattened skull and large lower premolar teeth.

Description.—Color of fur on back between Snuff Brown and Sayal Brown; individual hairs whitish at base and intermixed with scattered white hairs; belly slightly paler than back, hairs paler at tips; throat approaching Pinkish Buff; small patch below ear nearly white. Color of skin on face, ears, wing and tail membranes, and feet brown; posterior border of wing membrane narrowly edged with white from third finger to tarsus. Bristly hairs on outer margins of first and fifth toes appearing whitish in contrast to dark-colored feet.

Skull (occipital region missing) slightly smaller than in *Tadarida loriae*, larger and less flattened than in *T. norfolkensis*. Dorsal profile nearly straight; sagittal crest barely perceptible in parietal region, ris-

ing abruptly at point of junction with lambdoidal crests to form a low supraoccipital protuberance. Crowns of upper canine and posterior premolar teeth almost in contact, their outer margins forming an angular recess occupied by anterior premolar; anterior lower premolar similar in shape to, and only slightly smaller than, posterior lower premolar; two pairs of lower incisors.

Measurements.—Type specimen (followed in parentheses by measurements of a female paratype of *T. loriae* from Papua, USNM No. 142550, in alcohol): Head and body 53 (53); tail 36 (28); hind foot with claw 8.5 (8); ear from notch 14 (13); forearm 34 (33); length of skull from anteriormost projections of premaxillaries to summit of supraoccipital protuberance 14.7 (14.9); length of palate in midline 5.9 (6.3); breadth across maxillary protuberances, above M^1, 6.4 (6.4); intertemporal breadth 3.8 (4.0); upper toothrow, C-M^3, 6.0 (6.2); lower toothrow, C-M_3, 6.4 (6.7).

Remarks.—*Tadarida loriae cobourgiana* is known only from the type specimen. The dark wings and underparts readily distinguish it from *T. l. loriae,* in which those parts are white. Cranial characters, especially the large and relatively unflattened skull and the large size of the anterior lower premolar, ally *cobourgiana* with *loriae* rather than with *norfolkensis.* The three specimens from Helenvale, Queensland, referred by Tate (Bull. Amer. Mus. Nat. Hist., vol. 98, p. 604; 1952) to *T. l. loriae* are appreciably darker in dorsal color than the type of *cobourgiana.* In color of the upper parts, but not in other characters, *cobourgiana* is intermediate between *loriae* and *norfolkensis.*

All the small Australasian bats of this group may eventually be shown to represent a single species, a possibility that has been anticipated by Laurie and Hill (List of Land Mammals of New Guinea . . . , p. 63, 1954) in their treatment of the Papuan form, but the material now available is divisible into distinct northern and southern types which have not been shown to intergrade.

Order RODENTIA

Family MURIDAE

Notomys carpentarius, new species

Type specimen.—U. S. National Museum, No. 284353; female adult, skin and skull; collected June 8, 1948, by D. H. Johnson (field no. 5525).

Type locality.—Umbakumba, Port Langdon, northeastern corner of Groote Eylandt, Northern Territory, Australia (lat. 13° 51′ S., long. 136° 45′ E.).

Diagnosis.—A medium-sized, pale-colored *Notomys* with opisthodont incisors and a well defined glandular throat patch; resembling *N. alexis* but with longer hind feet, longer tail, pure white rather than gray-based underparts, narrower skull, longer nasals, and larger molar teeth.

Description.—Color above Light Ochraceous-Buff, more or less darkened by blackish hair tips, approaching Clay Color in midback; underparts white, hairs white to base except toward flanks where they are gray-based; face paler than back; tail sparsely haired and weakly bicolored for most of its length, pencilled and more distinctly bicolored at tip; glandular area on throat well marked in both sexes, more extensive

in males than in females. Skull with narrow braincase and broad frontal region; nasals long, extending well beyond incisors.

Measurements of type specimen.—Head and body 112 mm., tail 173, hind foot with claw 139, ear from notch 20; greatest length of skull 31.3, condylobasal length 27.6, anterior zygomatic breadth 16.1, posterior zygomatic breadth 15.1, interorbital breadth 5.5, breadth of braincase above auditory meati 12.3, depth of braincase 9.9, length of nasals 12.0, length of anterior palatine foramina 6.0, length of upper molar row 5.9.

Speciments examined.—A total of thirteen from the type locality (USNM Nos. 284350-62).

Remarks.—Hopping mice of the genus *Notomys* are desert animals characteristic of the arid interior of Australia. Their presence on the comparatively humid Groote Eylandt in the Gulf of Carpentaria was quite unsuspected until these specimens were collected. A suitable habitat for this sand-loving rodent is provided by extensive dunes and sandy flats that cover most of the northeastern part of the island.